

PROPOSED REMEDIAL OBJECTIVES REPORT

**ChemResearch Facility
PHOENIX, ARIZONA**



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LIST OF ABBREVIATIONS & ACRONYMS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Phoenix Active Management Area
ARS	Arizona Revised Statutes
AWQS	Aquifer Water Quality Standard
COC	Contaminants of Concern
COP	City of Phoenix
FS	Feasibility Study
HDPL	High Density Polyethylene Liner
IAQ	Indoor Air Quality
LWUS	Land and Water Use Study
mg/kg	Milligrams per kilogram
PCE	Tetrachloroethene
RO	Remedial Objective
RI	Remedial Investigation
RID	Roosevelt Irrigation District
SRL	Soil Remediation Level
SRP	Salt River Project
µg/L	Micrograms per liter
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Proposed Remedial Objectives (ROs) Report for ChemResearch Company, Inc. (the Facility). The Facility and associated groundwater plume (the “Site”, as defined in A.R.S. § 49-281.14) are located within the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Registry Site. The Proposed RO Report was prepared to meet requirements established under Arizona Administrative Code (A.A.C.) R18-16-406. This Proposed RO Report relies upon the Land and Water Use Study (LWUS) prepared for the ChemResearch Company, Inc. by ATC Group Services LLC, dated December 2020 and contained in the Draft Remedial Investigation (RI) Report.

ROs are established for the current and reasonably foreseeable uses of land and waters of the state that have been or are threatened to be affected by a release of a hazardous substance. Pursuant to A.A.C. R18-16-406(D), it is specified that reasonably foreseeable uses of land are those likely to occur at the Site, and the reasonably foreseeable uses of water are those likely to occur within one hundred years unless Site-specific information suggests a longer time period is more appropriate.

Reasonably foreseeable uses are those likely to occur based on information provided by water providers, well owners, land owners, government agencies, and others. Not every use identified in the LWUS will have a corresponding RO. Uses identified in the LWUS may or may not be addressed based on information gathered during the public involvement process, limitations of WQARF, and whether the use is reasonably foreseeable.

The ROs must be stated in the following terms: (1) protecting against the loss or impairment of each use; (2) restoring, replacing, or otherwise providing for each use; (3) when action is needed to protect or provide for the use; and (4) how long action is needed to protect or provide for the use.

The ROs chosen for the Site will be evaluated in the feasibility study (FS) phase of the WQARF process. The FS will evaluate specific remedial measures and strategies required to meet the ROs. A remedial strategy is one or a combination of six general strategies identified in Paragraph B.4 of Arizona Revised Statutes (A.R.S.) 49-282.06 (plume remediation, physical containment, controlled migration, source control, monitoring, and no action). A remedial measure is a specific action taken in conjunction with remedial strategies to achieve one or more ROs (for example, well replacement, well modification, water treatment, water supply replacement, or engineering controls).

The FS will propose at least three remedies capable of meeting ROs: a reference remedy and two alternative remedies. A reference remedy is a combination of remedial strategies and measures capable of achieving ROs, and is compared with alternative remedies for purposes of selecting a proposed remedy. An alternative remedy is a combination of remedial strategies and measures different from the reference remedy. Alternative remedies are compared with the reference remedy for purposes of selecting a proposed remedy. Proposed remedies will be generally compatible with future land and water use specified by land owners and water providers.

Comments on this Proposed RO Report will be accepted for a period of 30 days following the publication.

2.0 REMEDIAL OBJECTIVES FOR LAND USE

The ChemResearch Facility is located in the City of Phoenix (COP) and consists of approximately 1.84 acres. The Facility is developed with two industrial buildings (Building 1122 [currently identified as Building 1130A] and Building 1130 [currently identified as Building 1130B]) located on the north side of West Hilton Avenue and one office building (Building 1101) located on the south side of West Hilton Avenue. Contaminants of concern (COCs) for the Site are tetrachloroethylene (PCE) and hexavalent chromium. The source of these COCs are attributable to the historic plating practices which have occurred at the Facility.

In groundwater, a contaminant plume of PCE and hexavalent chromium is defined as beginning at Building 1122 at the Facility and following a general northwest groundwater flow direction 3,900 feet downgradient from the building, with a width of 800 feet. The Site is bounded approximately by West Pima Street to the north, Hilton Avenue to the south, South 11th Avenue to the east, and South 21st Avenue to west. Based on the information provided in the Draft RI Report, no additional contaminant sources from up-gradient or side-gradient locations are currently known to be contributing to the contaminant plume as currently defined.

In soil, remedial activities have included excavation and disposal of contaminated soil beneath the East Bay area in 1995 and excavation and disposal of impacted soil beneath the West Bay area in 2017. These soil remedial actions have reduced the dissolved phase concentrations of COC migrating through surficial soil at the Site.

Typically, ROs for land use are established for those properties known to be contaminated with hazardous substances above a Soil Remediation Level (SRL) or a risk-based level. Soil data collected at various locations within the Site indicate that the vadose zone and surficial soil is contaminated above applicable regulatory standards for COCs. The groundwater is currently contaminated with COCs above applicable regulatory standards.

2.1 Summary of Current and Reasonably Foreseeable Land Use

The Site is located in a generally industrial area, with lesser nearby commercial, public, and residential usage. There are no special planning districts within the Site area. The focus area of the 2020 LWUS is located in the Central City urban village, one of 15 urban villages which comprise the COP. There is no village core within the study area of the LWUS. No significant change to property use is expected to occur within the foreseeable future.

2.2 Soil Remedial Objective

Vadose zone data indicate that the Site COCs of PCE and hexavalent chromium are detected in concentrations in soil greater than applicable SRLs. In 2017, the maximum concentration of PCE detected in soil samples in the West Bay area of the site was 13.1 milligrams per kilogram (mg/kg), which is above the residential SRL of 5.1 mg/kg and the non-residential SRL of 13 mg/kg. In 2016, the maximum concentration of hexavalent chromium detected in soil samples in the East Bay area of the site was 744 mg/kg, which is above the residential SRL of 30 mg/kg and the non-residential SRL of 65 mg/kg. Additionally, in 2017, one post-excavation soil sample in

the West Bay area of the Site detected cadmium at 74.3 mg/kg, which is above the residential SRL of 39 mg/kg but below the non-residential SRL of 510 mg/kg for cadmium. Extensive excavation and removal of contaminated soils occurred within the East Bay (1995) and the West Bay (2017) as part of early response actions (ERAs) conducted at the site. During these excavation actions, efforts to remove impacted soil beneath the East Bay and West Bay were hampered by the foundation of the building and the footers for the roof supports. Therefore, there is a limited volume of contaminated soil that cannot be removed without jeopardizing the structural integrity of the Facility. This limited volume of contaminated soil will be removed if/when the property is redeveloped in the future.

The East and North Bays within the Facility (including the East Bay soil ERA area) operate over a system of concrete and high-density polyethylene liner (HDPE) trenches and pits. The area in which impacted soil excavation occurred within the West Bay was filled in post-excavation with aggregate base material and covered with six inches of reinforced concrete, matching the existing concrete floor. Thus, there is no direct exposure of the limited contamination to workers at the Facility. Additionally, an indoor air quality (IAQ) survey conducted in 2019 (which included multiple buildings within the Facility) indicated that there were no detected COCs exceeding their carcinogenic or non-carcinogenic target levels (if established).

There is no reasonably foreseeable use of the Site for residential purposes. The Site is in an industrial area surrounded by manufacturing facilities. Based on the information presented above a remedial objective is not needed for land use.

3.0 REMEDIAL OBJECTIVES FOR GROUNDWATER USE

The groundwater use portion of the LWUS is an inclusive summary of information gathered from the Arizona Department of Water Resources (ADWR), water providers, municipalities, and land owners. The water providers within the Site are the COP, the Roosevelt Irrigation District (RID), and the Salt River Project (SRP).

3.1 Summary of Current and Reasonably Foreseeable Groundwater Use

The Site lies within the Phoenix Active Management Area (AMA). The Phoenix AMA was created by the Arizona Groundwater Management Code passed in 1980 and covers approximately 5,646 square miles in central Arizona. All groundwater withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well.

According to ADWR records, there are two non-exempt withdrawal wells outside the northern edge of the Site boundary: a RID supply well (RID 104; ADWR No. 55-607207) used for irrigation and the Steiner Corporation Industrial Well (ADWR No. 55-600093) used for industrial water production. Neither well is located within the contaminated groundwater plume as depicted within the Draft RI Report. ADWR records indicate that there are no exempt withdrawal wells within the Site and there are no grandfathered rights within the Site. The COP and SRP have service area rights within the Site. Neither entity is currently pumping groundwater within the Site.

The Site is located within the COP and the Phoenix AMA, an area where groundwater use is controlled and regulated. The COP does not have groundwater wells within or near the Site. Currently a portion of the groundwater within the Site is contaminated with COCs that would restrict use of the groundwater by the COP if the city wanted to use the groundwater for municipal purposes.

SRP currently has no groundwater production wells within the Site; however, SRP owns 10 groundwater production wells near the Site. The nearest well is approximately five miles west of the Site. SRP's current stated use for those wells is for irrigation purposes. However, future use may include commercial and residential supply.

3.2 Groundwater Remedial Objectives

The current use of water at the Site is for irrigation water and industrial water. The future use of groundwater at the Site includes irrigation, industrial, and potential municipal (potable supply). The groundwater at the Site is currently contaminated with PCE and hexavalent chromium at concentrations that exceed the AWQS. Thus, the ROs for groundwater use at the Site are as follows:

Irrigation Use

Protect against the loss or impairment of irrigation water threatened by the contaminants of concern at the ChemResearch Facility within the West Van Buren WQARF Site. Where protection cannot be achieved in a reasonable, necessary, or cost-effective manner; restore, replace, or otherwise provide for irrigation water that is lost or impaired by the contaminants of concern at the ChemResearch Facility within the West Van Buren WQARF Site. Action is needed for as long as necessary to ensure that, while the water exists and the resource remains available, the contamination associated with the ChemResearch Facility within the West Van Buren WQARF Site does not prohibit or limit the designated use of groundwater.

Industrial Use

Protect against the loss or impairment of industrial water threatened by the contaminants of concern at the ChemResearch Facility within the West Van Buren WQARF Site. Where protection cannot be achieved in a reasonable, necessary, or cost-effective manner; restore, replace, or otherwise provide for industrial water that is lost or impaired by the contaminants of concern at the ChemResearch Facility within the West Van Buren WQARF Site. Action is needed for as long as necessary to ensure that, while the water exists and the resource remains available, the contamination associated with the ChemResearch Facility within the West Van Buren WQARF Site does not prohibit or limit the designated use of groundwater.

Potable Use

Protect against the loss or impairment of potable water threatened by the contaminants of concern at the ChemResearch Facility within the West Van Buren WQARF Site. Where protection cannot be achieved in a reasonable, necessary, or cost-effective manner; restore, replace, or otherwise provide for potable water that is lost or impaired by the contaminants of concern at the ChemResearch Facility within the West Van Buren WQARF Site. Action is needed for as long as necessary to ensure that, while the water exists and the resource remains available, the contamination associated with the ChemResearch Facility within the West Van Buren WQARF Site does not prohibit or limit the designated use of groundwater.

4.0 REMEDIAL OBJECTIVES FOR SURFACE WATER USE

There is no surface water within the Site and no current surface water use within the Site. The Salt River is located approximately 1.5 miles south of the Site.

4.1 Summary of Current and Reasonably Foreseeable Surface Water Use

There is no reasonably foreseeable scenario in which surface water would become available for use within the Site. Groundwater is produced by well RID 104 and transmitted for irrigation use miles offsite.

4.2 Surface Water Remedial Objective

As stated above; there is no current use of surface water at the Site, nor a (or any) foreseeable future scenario in which surface water would be available for use. The RID may use groundwater pumped from the Site to supplement water in the RID canals offsite for irrigation use. Thus, ROs for surface water use are not needed because the ROs for groundwater use for the water pumped into the RID transmission and canal system are applicable and no surface waters are currently available or used or reasonably foreseeable for future availability or use at the Site.